

Electric motor must be purchased separately.

FEATURES

- Triplex plunger design provides a smooth liquid flow.
- Specially formulated Hi-Pressure Seals and concentrically ground ceramic plungers assure maximum seal life.
- Stacked Stainless steel valve design for long life and easy servicing.
- Ultimate compact, direct-drive unit for maximum portability.
- Standard Integral Regulator with built-in by-pass assures system pressure control and pump protection.

COMMON SPECIFICATIONS

| | | |
|-------------------------------|---------------------|----------------------|
| Inlet Pressure Range | Flooded to 60 PSI | (Flooded to 4 Bar) |
| Bore | 0.630" | (16 mm) |
| Max. Liquid Temperature | 140° F | (60° C) |
| Crankcase Capacity | 8.5 oz. | (0.25 L) |
| Inlet Ports (1) | 3/8" NPTF | (3/8" NPTF) |
| Discharge Port (1) | 3/8" NPTM | (3/8" NPTM) |
| Shaft Diameter | 5/8" | (15.8 mm) |
| Weight | 10.7 lbs. | (4.9 kg) |
| Dimensions | 7.99 x 7.75 x 6.29" | (203 x 197 x 160 mm) |

NOTE: 3450 RPM models with 1725 RPM motor deliver half original flow.

⚠ WARNING

All systems require both a primary pressure regulating device (i.e., regulator, unloader) and a secondary pressure safety relief device (i.e., pop-off valve, safety valve). Failure to install such relief devices could result in personal injury or damage to the pump or to system components. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

Direct-Drive Misting Plunger Pumps

1725 RPM Model 2DX05ELS.MIST

3450 RPM Models 2DX15ES.MIST
2DX20ES.MIST
2DX27ES.MIST
2DX30ES.MIST

SPECIFICATIONS

| | U.S. Measure | Metric Measure | U.S. Measure | Metric Measure |
|-------------------------|----------------------|----------------|---------------------|----------------|
| MODEL | 2DX05ELS.MIST | | 2DX15ES.MIST | |
| Flow | 0.5 GPM | (1.89 L/M) | 1.5 GPM | (5.7 L/M) |
| Max. Discharge Pressure | 2000 PSI | (140 BAR) | 2000 PSI | (140 BAR) |
| Max. RPM | 1725 RPM | (1725 RPM) | 3450 RPM | (3450 RPM) |
| Stroke | 0.078" | (2.0 mm) | 0.118" | (3.0 mm) |
| MODEL | 2DX20ES.MIST | | 2DX27ES.MIST | |
| Flow | 2.0 GPM | (7.6 L/M) | 2.7 GPM | (10.2 L/M) |
| Max. Discharge Pressure | 2000 PSI | (140 BAR) | 2000 PSI | (140 BAR) |
| Max. RPM | 3450 RPM | (3450 RPM) | 3450 RPM | (3450 RPM) |
| Stroke | 0.157" | (4.0 mm) | 0.220" | (5.6 mm) |
| MODEL | 2DX30ES.MIST | | | |
| Flow | 3.0 GPM | (11.4 L/M) | | |
| Max. Discharge Pressure | 1500 PSI | (105 BAR) | | |
| Max. RPM | 3450 RPM | (3450 RPM) | | |
| Stroke | 0.244" | (6.2 mm) | | |

ELECTRIC HORSEPOWER REQUIREMENTS

| MODEL | FLOW | | PRESSURE | | | | RPM |
|---------------|----------|------|--------------------|--------------------|---------------------|---------------------|------|
| | U.S. GPM | L/M | PSI 1000 BAR 70 | PSI 1200 BAR 85 | PSI 1500 BAR 105 | PSI 2000 BAR 140 | |
| 2DX05ELS.MIST | 0.5 | 1.89 | 0.34 | 0.41 | 0.51 | 0.68 | 1725 |
| 2DX15ES.MIST | 1.5 | 5.7 | 1.03 | 1.23 | 1.54 | 2.05 | 3450 |
| 2DX20ES.MIST | 2.0 | 7.6 | 1.37 | 1.64 | 2.05 | 2.74 | 3450 |
| 2SX27ES.MIST | 2.7 | 10.2 | 1.85 | 2.22 | 2.77 | 3.70 | 3450 |
| 2DX30ES.MIST | 3.0 | 11.4 | 2.05 | 2.46 | 3.08 | N/A | 3450 |

| | | | |
|--------------------------------------|--------------------------|---|-------------------------|
| DETERMINING THE PUMP R.P.M. | <u>Rated G.P.M.</u> | = | <u>"Desired" G.P.M.</u> |
| | <u>Rated R.P.M.</u> | = | <u>"Desired" R.P.M.</u> |
| DETERMINING THE REQUIRED H.P. | <u>GPM x PSI</u> | = | <u>Electric Brake</u> |
| | 1460 | = | <u>H. P. Required</u> |
| DETERMINING MOTOR PULLEY SIZE | <u>Motor Pulley O.D.</u> | = | <u>Pump Pulley O.D.</u> |
| | <u>Pump R.P.M.</u> | = | <u>Motor R.P.M.</u> |

Refer to pump Service Manual for repair procedure, additional technical information and pump warranty.

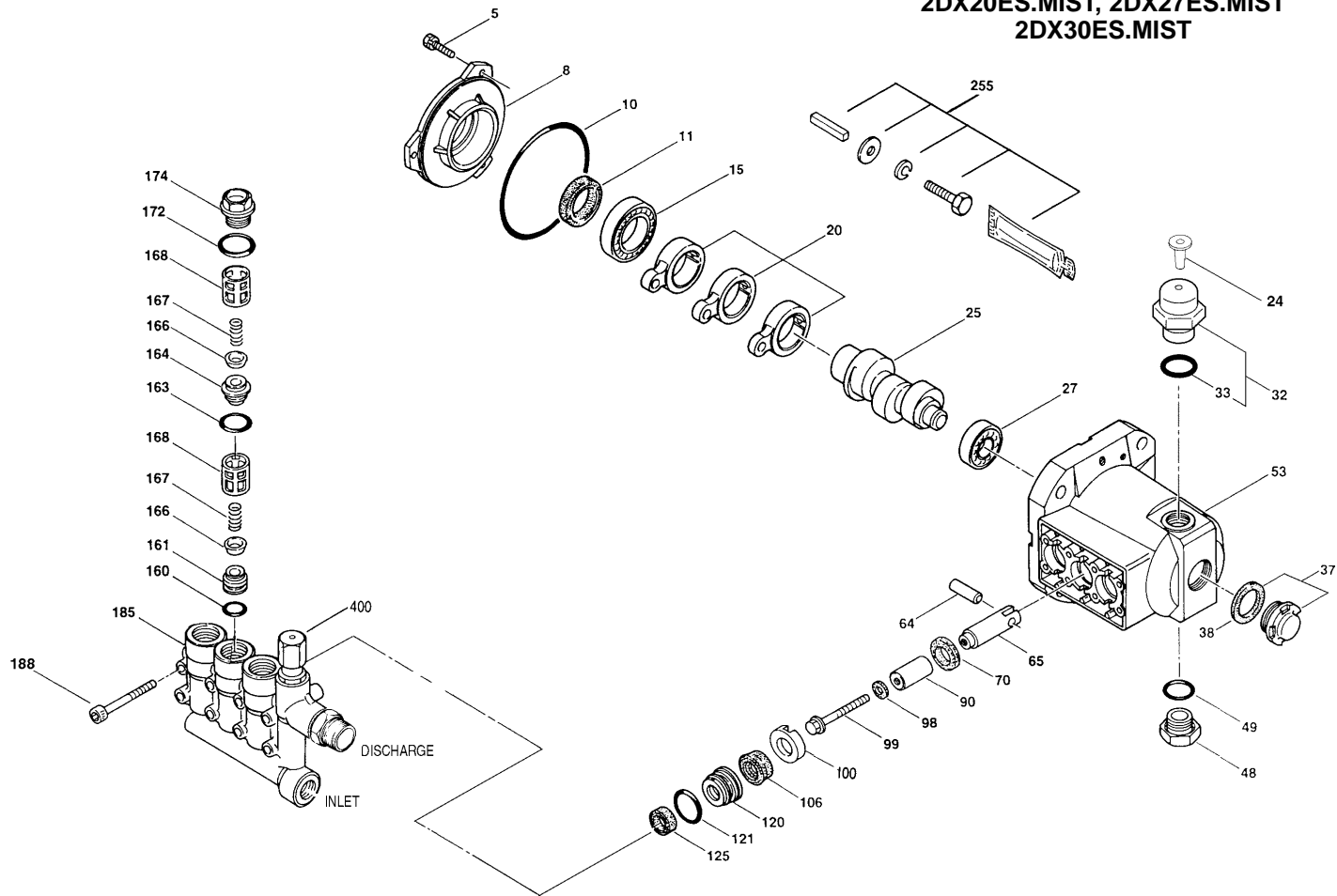
"Customer confidence is our greatest asset"

EXPLODED VIEW

May 2007

PLUNGER PUMP MODELS

2DX05ELS.MIST, 2DX15ES.MIST,
2DX20ES.MIST, 2DX27ES.MIST
2DX30ES.MIST



PARTS LIST

| ITEM | P/N | MATL | DESCRIPTION | MODEL USED | QTY | ITEM | P/N | MATL | DESCRIPTION | MODEL USED | QTY |
|------|--------|--------|---------------------------------------|------------|-----|------|--------|--------|--|------------|-----|
| 5 | 547161 | STCP | Screw, HH (M6x14) [04/05] | All Models | 3 | 106 | 48222 | NBR | Seal, LPS w/S-Spg - 85D | All Models | 3 |
| | 549360 | STCP R | Screw, HH (M6x14) | All Models | 3 | 120 | 46436 | BB | Case, Seal | All Models | 3 |
| 8 | 547153 | AL | Cover, Bearing [04/05] | All Models | 1 | 121 | 13976 | NBR | O-Ring, Seal Case - 70D | All Models | 3 |
| 10 | 14041 | NBR | O-Ring, Bearing Cover - 70D | All Models | 1 | 125 | 46240 | NBR | Seal, HPS w/S | All Models | 3 |
| 11 | 55337 | NBR | Seal, Oil - 70D | All Models | 1 | 160 | 13965 | NBR | O-Ring, Inlet Valve Seat - 70D | All Models | 3 |
| 15 | 14488 | STL | Bearing, Ball - Inner | All Models | 1 | 161 | 545177 | S | Seat, Inlet | All Models | 3 |
| 20 | 547048 | TNM | Rod, Connecting | All Models | 3 | 163 | 19285 | NBR | O-Ring, Seat - 70D | All Models | 3 |
| 24 | 76045 | LDPE | Plug, Oil Cap (remove before startup) | All Models | 1 | 164 | 545178 | S | Seat, Discharge | All Models | 3 |
| 25 | 545653 | CM | Crankshaft, 1725 RPM, 5/8", 2.0 mm | 05ELS.MIST | 1 | 166 | 46764 | S | Valve | All Models | 6 |
| | 545144 | CM | Crankshaft, 3450 RPM, 5/8", 3.0 mm | 15ES.MIST | 1 | 167 | 46865 | S | Spring | All Models | 6 |
| | 545765 | CM | Crankshaft, 3450 RPM, 5/8", 4.0 mm | 20ES.MIST | 1 | 168 | 543988 | PVDF | Retainer, Spring | All Models | 6 |
| | 545145 | CM | Crankshaft, 3450 RPM, 5/8", 5.6 mm | 27ES.MIST | 1 | 172 | 142807 | NBR | O-Ring, Plug - 90D | All Models | 3 |
| | 549901 | CM | Crankshaft, 3450 RPM, 5/8", 6.2 mm | 30ES.MIST | 1 | 174 | 46759 | BB | Plug, Valve (M20x1.5) | All Models | 3 |
| 27 | 13832 | STL | Bearing, Ball - Outer | All Models | 1 | 185 | 548592 | BB | Head, Manifold w/Integral Regulator Body | All Models | 1 |
| 32 | 547961 | RTP | Cap, Oil Filler w/O-Ring | All Models | 1 | 188 | 542406 | STZP | Screw, HSH (M6x60) | All Models | 8 |
| 33 | 14179 | NBR | O-Ring, Oil Filler Cap - 70D | All Models | 1 | | 549357 | STCP R | Screw, HSH (M6x60) | All Models | 8 |
| 37 | 92241 | — | Gauge, Bubble Oil w/Gasket | All Models | 1 | 255 | 30516 | STZP | Assy, Bolt Mount | All Models | 1 |
| 38 | 44428 | NBR | Gasket, Flat Flex, Oil Gauge - 80D | All Models | 1 | | 34100 | STZP | Screw, HH (3/8"-16UNCx1-3/8") | | 4 |
| 48 | 44842 | NY | Plug, Drain | All Models | 1 | | 126543 | STCP R | Screw, HH (3/8"-16UNCx1-3/8") | | 4 |
| 49 | 14179 | NBR | O-Ring, Drain Plug - 70D | All Models | 1 | | 30980 | STZP R | Washer, Flat (3/8") | | 4 |
| 53 | 542407 | AL | Crankcase | All Models | 1 | | 30921 | STZP R | Lockwasher (3/8") | | 4 |
| 64 | 46229 | CM | Pin, Crosshead | All Models | 3 | | 6106 | — | Lubricant, Antiseize | | 1 |
| 65 | 542402 | BBCP | Rod, Plunger | All Models | 3 | | 34050 | STL | Key (3/16x3/16x27 HD) | | 1 |
| 70 | 47215 | NBR | Seal, Oil - 70D | All Models | 3 | 300 | 33053 | NBR | Kit, Seal (Incls: 98,106,121,125) | All Models | 1 |
| 90 | 542403 | CC | Plunger (M16x27) | All Models | 3 | 310 | 33057 | NBR | Kit, Valve | All Models | 1 |
| 98 | 46730 | NBR | Washer, Seal - 90D | All Models | 3 | | | | (Incls: 160,161,163,164,166,167,168,172) | | |
| 99 | 542405 | S | Retainer, Plunger (M6x35) | All Models | 3 | 400 | — | — | Regulator, Integral (See Indiv. Parts) | All Models | 1 |
| 100 | 46233 | NY | Retainer, Seal | All Models | 3 | | | | | | |

Bold Part Numbers are unique to a particular pump model. *Italics are optional items.* [] Date of latest production change. R Components comply with RoHS Directive. See Tech Bulletins 002, 024, 036, 043, 055, 074, 083, 086 and 094 for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CM=Chrome-moly LDPE=Low Density Polyethylene NBR=Medium Nitrile (Buna-N) NY=Nylon PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated TNM=Special High Strength

NOTE: Discard Key which may come standard with most motors and use only the key included in this kit.

INTEGRAL REGULATOR

SPECIFICATIONS

| | | |
|----------------------|---------------------|-----------------------|
| | U.S. Measure | Metric Measure |
| GPM..... | 3.1 GPM | (11.7 L/M) |
| PSI Range..... | 100-2000 PSI | (7-140 BAR) |
| Discharge Port | 3/8" NPTM | (3/8" NPTM) |

REGULATOR TYPE

An integral regulator with built-in by-pass is part of the discharge manifold to provide system pressure regulation and pump protection.

OPERATION:

Pump should be purged of air before commencing with operation. Liquid must flow through the pump without discharge restriction to assure full system pressure is reached.

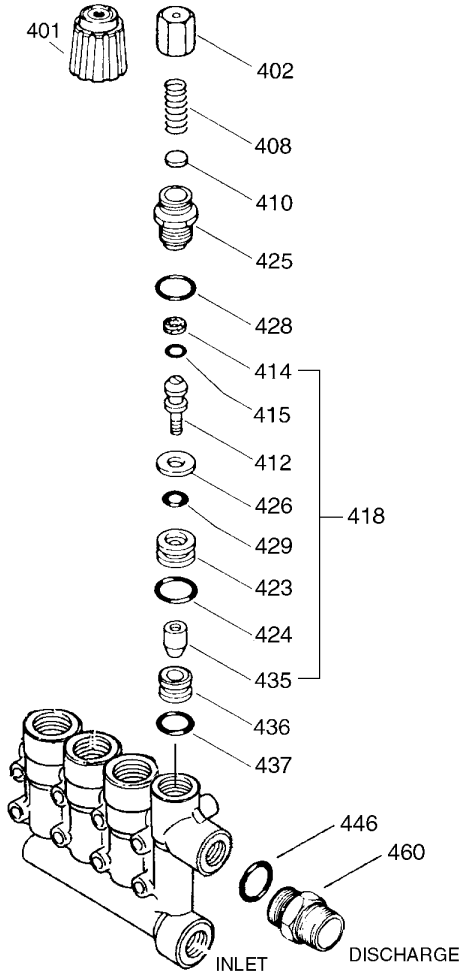
Install a pressure gauge close to the manifold head of the pump to assist in setting system pressure and to periodically monitor system pressure.

Setting and adjusting the regulator pressure must be done with the system turned on. Start the system with the regulator backed off to the lowest pressure setting (counterclockwise direction). Read the pressure on the gauge at the pump. Do not read pressure at the nozzle. If more pressure is desired, turn adjusting cap one quarter turn in a clockwise direction and read the pressure. Repeat this process until the desired system pressure is reached.

NOTE: Pressure is not set at the factory.

SERVICE:

The regulator should be serviced on the same schedule as the seals in the pump. Refer to 2DX Service Manual for start-up, servicing of seals and valves, torque requirements and diagnosis and maintenance chart.



PARTS LIST

| ITEM | PN | MATL | DESCRIPTION | QTY. |
|------|--------|--------|---|------|
| 401 | 32088 | NY | Handle, Adjusting | 1 |
| 402 | 46570 | BB | Cap, Adjusting | 1 |
| 408 | 33394 | STZP R | Spring, Pressure | 1 |
| 410 | 45862 | STZP | Retainer, Spring | 1 |
| | 549352 | STCP R | Retainer, Spring | 1 |
| 412 | 46251 | BB | Stem, Piston | 1 |
| 414 | 28338 | PTFE | Back-up-Ring, Piston Stem | 1 |
| 415 | 22056 | NBR | O-Ring, Piston Stem - 70D | 1 |
| 418 | 548229 | BB | Assy, Piston <i>Incls: (412,414,415,423,424,426,429,435)</i> | 1 |
| 423 | 46249 | BB | Retainer, Valve | 1 |
| 424 | 13966 | NBR | O-Ring, Valve Retainer (Outer) - 70D | 1 |
| 425 | 46248 | BB | Retainer, Piston | 1 |
| 426 | 46250 | S | Washer | 1 |
| 428 | 13969 | NBR | O-Ring, Piston Retainer - 70D | 1 |
| 429 | 17399 | NBR | O-Ring, Valve Retainer (Inner) - 80D | 1 |
| 435 | 548193 | S | Valve | 1 |
| 436 | 46253 | S | Seat | 1 |
| 437 | 13963 | NBR | O-Ring, Seat - 70D | 1 |
| 446 | 13969 | NBR | O-Ring, Discharge Fitting - 70D | 1 |
| 460 | 107681 | BB | Fitting, Discharge (3/8" NPTM) | 1 |
| 468 | 33099 | NBR | Kit, O-Ring <i>(Incls: 414,415,424,428,429,437)</i> | 1 |
| — | 31088 | NBR | Kit, Repair <i>(Incls: 418,428,436,437)</i> | 1 |

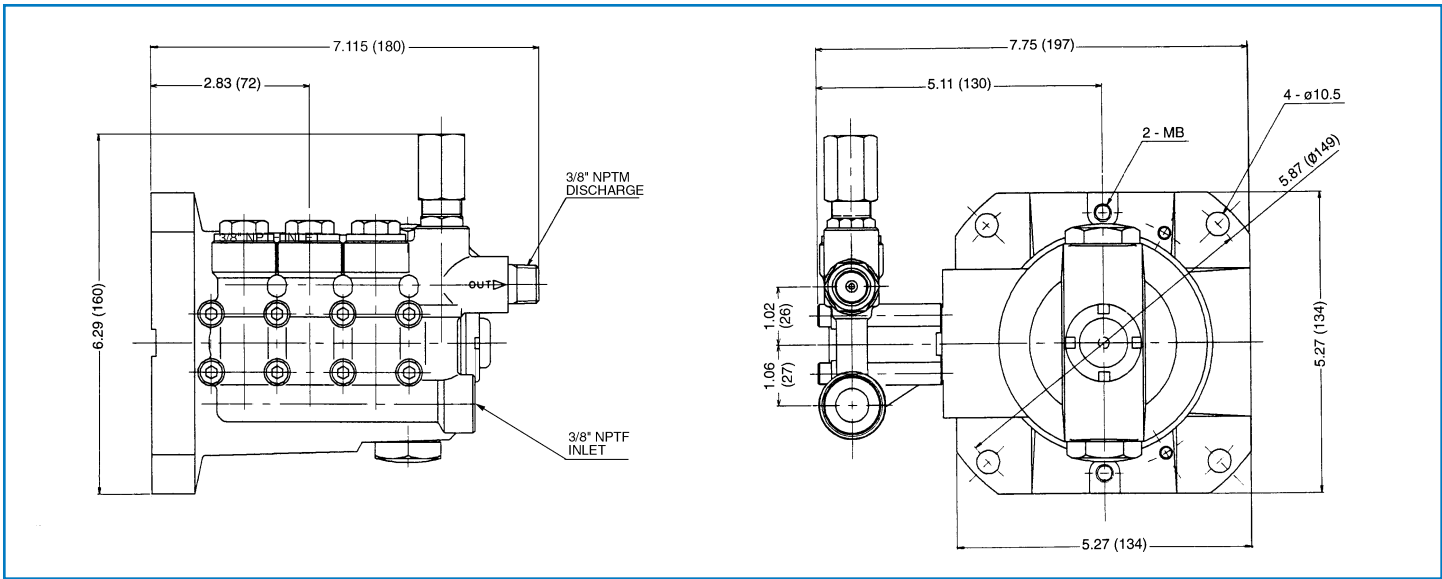
Italics are optional items. R Components comply with RoHS Directive.

MATERIAL CODES (Not Part of Part Number):

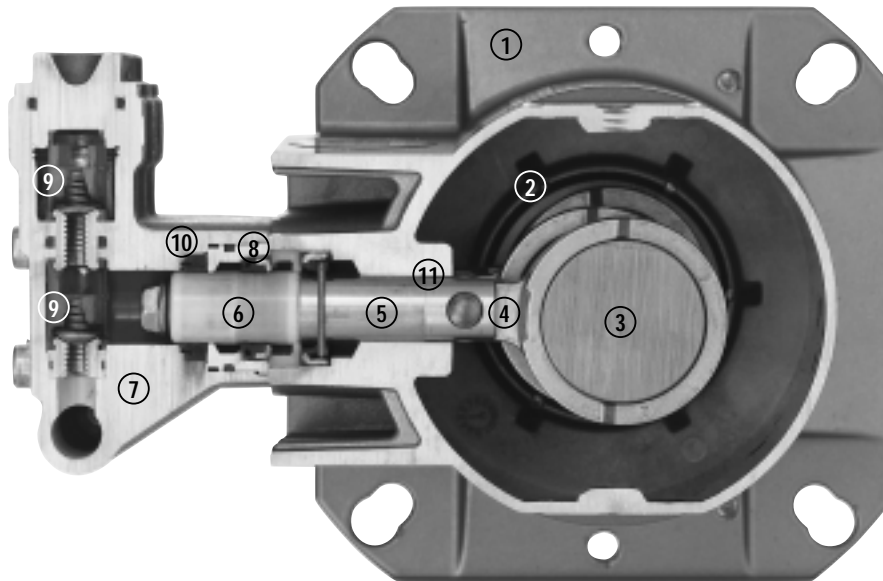
BB=Brass NBR=Medium Nitrile (Buna-N) NY=Nylon

PTFE=Pure Polytetrafluoroethylene S=304SS STCP=Steel/Chrome Plated

STZP=Steel/Zinc Plated



Models 2DX05ELS.MIST, 2DX15ES.MIST, 2DX20ES.MIST, 2DX27ES.MIST, 2DX30ES.MIST



- | | | |
|--|---|--|
| <p>1 Die cast flange-style aluminum crankcase means high strength, lightweight, and excellent tolerance control.</p> <p>2 Heavy-duty dual crankshaft bearings provide extended drive-end life.</p> <p>3 Chrome-moly crankshaft provides unmatched strength and surface hardness for long life.</p> <p>4 High strength connecting rods assure durability and bearing quality.</p> | <p>5 Strong chrome plated brass plunger rods with chrom-moly crosshead pins.</p> <p>6 Special, concentric, high-density, polished solid ceramic plungers provide a true wear surface and extended seal life.</p> <p>7 High tensile strength, forged brass manifold head with built-in integral regulator and eight mounting screws for exceptional strength.</p> <p>8 100% wet seal design adds to service life by allowing pumped liquids to cool and lubricate on both sides.</p> | <p>9 Stainless steel valves, seats and springs provide corrosion-resistance, ultimate seating and extended life.</p> <p>10 Unique design and specially formulated Hi-Pressure Seals offer unmatched performance and seal life.</p> <p>11 Crossheads are 360° supported for uncompromising alignment.</p> |
|--|---|--|

Products described hereon are covered by one or more of the following U.S. patents 3558244, 3652188, 3809508, 3920356, 3930756 and 5035580

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